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SEAWIND: Multi-physics high-resolution re-forecast of surface wind in the Mediterranean Domain

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The project SEAWIND is part of the Spanish Strategic Action for the study of impacts of climate change in the coast. The goal of this project is performing a high-resolution (15 km) regional re-forecast coupling the WRF-ARW v3.1 model to ERA reanalysis conditions, focusing on surface wind. In order to validate the performance of the different surface physical schemes, a 3-months period during October, November and December 2001 months (the 2001 super-storm event in the West Mediterranean) was chosen. Numerical results are evaluated with more than 50 hourly surface stations during the period. Four different combinations of land surface, surface layer and boundary schemes are evaluated during the period. A new WRF diagnosis module has been added in order to better capture time-step variations of surface variables. Using this module one can capture maximum and minimum values of surface temperature, wind and rainfall at each WRF integration time-step. The sensitivity of the wind field to the different physical combinations of the model is analyzed.